

**REMARKS**

Claims 34-37, 46, 53-58 and 60 are pending in the present application. Claims 34 and 53 have been amended. Claims 59 and 61 have been canceled.

**Objection-35 U.S.C. 132(a)**

The Amendment filed **April 16, 2009** has been objected to under 35 U.S.C. 132(a) for the reasons stated on page 2 of the current Office Action dated May 28, 2009. The Examiner has asserted that the features of claims 59 and 61 introduce new matter not supported by the original disclosure. In an effort to advance prosecution, claims 59 and 61 have been canceled. The Examiner is therefore requested to withdraw this objection.

**Claim Rejections-35 U.S.C. 112**

Claims 59 and 61 have been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. As noted above, claims 59 and 61 have been canceled. The Examiner is therefore requested to withdraw this rejection.

**Drawing Objection**

The drawings have been objected to under 37 C.F.R. 1.83(a) as failing to show the features of claims 59 and 61. However, as noted above, claims 59 and 61 have

been canceled. The Examiner is therefore requested to withdraw this objection.

**Claim Rejections-35 U.S.C. 103**

Claims 34, 37, 46, 53, 58, 59 and 61 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Egawa reference (U.S. Patent No. 6,229,215) in view of the Buckley, III et al. reference (U.S. Patent No. 5,477,082). This rejection, insofar as it may pertain to the presently pending claims, is traversed for the following reasons.

The semiconductor device of claim 34 includes in combination among other features a BGA (ball grid array) type semiconductor device "including a base plate, a first semiconductor element mounted on the frontside surface of the base plate, a first resin that seals an upper surface of the semiconductor element and the frontside surface of the base plate, and a plurality of bumps formed on a backside surface of the base plate that is opposite the frontside surface"; a CSP (chip size packaged) type semiconductor device "mounted on an area of the backside surface of the base plate of said BGA type semiconductor device which does not have the plurality of bumps formed thereon,...wherein the back surface and the entirety of the side surfaces of the second semiconductor element are exposed". As further featured, the CSP type semiconductor device "has a second resin that covers the main surface of the second semiconductor element and side surfaces of the terminals, the first and second resins are separate from each other", and "a gap without resin exists between the second semiconductor element and the backside surface of the base plate". Applicants

respectfully submit that the semiconductor device of claim 34 would not have been obvious in view of the prior art as relied upon by the Examiner for at least the following reasons.

In a somewhat similar manner as in the previous Office Action dated January 26, 2009, the Examiner has primarily relied upon Figs. 1(b) and 4 of the Egawa reference as taken together. However, Fig. 1(b) of the Egawa reference is a cross section of a semiconductor device of a **first embodiment**, while in contrast Fig. 4 of the Egawa reference illustrates a method for manufacturing a semiconductor device of a **third embodiment**. Accordingly, in formulating this rejection, the Examiner has relied upon separate and distinct first and third embodiments of the Egawa reference.

That is, in the Fig. 1(b) embodiment of the Egawa reference, semiconductor chip 17 (interpreted by the Examiner as the second semiconductor element of claim 34) has side surfaces thereof which are covered by resin. Accordingly, the structure in the Fig. 1(b) embodiment of the Egawa reference modified to be mounted on a printed circuit board in view of the Buckley, III et al. reference as suggested by the Examiner, would not include a CSP type semiconductor device having a second semiconductor element wherein a back surface and the entirety of side surfaces of the second semiconductor element are exposed, as would be necessary to meet the features of claim 34.

On the other hand, although semiconductor chip 17 as shown in the Fig. 4 third embodiment of the Egawa reference has a back surface and side surfaces which are exposed, the structure as shown in connection with the processing step described with

respect to Fig. 4 of the Egawa reference includes base plate 30 having through-hole 31 therein. Injected resin 33 reaches the surface of the second semiconductor chip 17 by way of through-hole 31, **in a single injection process**. That is, the same resin seals both the front side surface of base plate 30 and the main surface of second semiconductor chip 17. The Fig. 4 third embodiment of the Egawa reference thus does not disclose first and second resins that are separate from each other, as would be necessary to meet the features of claim 34. Moreover, in the third embodiment as shown in Fig. 4 of the Egawa reference, semiconductor chip 11 (interpreted as the first semiconductor element of claim 34) does not have a resin that seals an upper surface thereof, as would be necessary to meet the still further features of claim 34.

Accordingly, the Examiner has picked and combined certain aspects of two distinct and separate embodiments of the Egawa reference in an effort to show a device that meets the features of claim 34. The Examiner has however failed to explain why certain aspects of the first and third embodiments have been retained in the combination, while other features have not. In absence of specific reasoning or teaching as gleaned from the Egawa reference, it would appear that in an effort to meet the features of claim 34, the Examiner has relied upon impermissible hindsight to construct a combination from the separate and distinct embodiments.

In the current Office Action dated May 28, 2009, the Examiner has failed to address the similar traversals as presented in the Amendment dated April 16, 2009 regarding the differently relied upon embodiments of the Egawa reference. **The**

**Examiner is respectfully requested to answer the substance of these arguments, so that the record with respect to this application is clear and complete prior to appeal.**

With further regard to this rejection, a gap without resin does not exist between semiconductor chip 17 and internal substrate 10 (Fig. 1(b)) or 30 (Fig. 4) of the Egawa reference, as would be necessary to meet the further features of claim 34. As described in column 3, lines 46-47 of the Buckley, III et al. reference, an encapsulant such as epoxy (not shown) is placed around die 56 and 58 to provide mechanical strength and reliability. The Buckley, III et al. reference does not appear to disclose a gap without resin as would be necessary to meet the features of claim 34. Applicants therefore respectfully submit that the semiconductor device of claim 34 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection, insofar as it may pertain to claims 34, 37, 46 and 58, is improper for at least these additional reasons.

The semiconductor device of claim 53 includes in combination among other features a BGA (ball grid array) type semiconductor device "including a base plate, a first semiconductor element mounted on a frontside surface of the base plate, a first resin that seals an upper surface of the first semiconductor element and the frontside surface of the base plate, and a plurality of bumps formed on a backside surface of the base plate that is opposite the frontside surface"; and a CSP (chip size packaged) type semiconductor device "mounted on an area of the backside surface of the base plate of

said BGA type semiconductor device which does not have the plurality of bumps formed thereon,...wherein the back surface and the entirety of the side surfaces of the second semiconductor element are exposed,... the first and second resins are separate from each other". As further featured, "a gap without resin exists between the second semiconductor element and the backside surface of the base plate".

Applicants respectfully submit that the prior art as relied upon by the Examiner taken singularly or together does not disclose separate first and second resins, whereby the first resin seals an upper surface of a first semiconductor element, and whereby a back surface and the entirety of side surfaces of the second semiconductor element are exposed, as would be necessary to meet the features of claim 53. In the Fig. 1(b) first embodiment of the Egawa reference, semiconductor chip 17 does not have side surfaces that are exposed from resin. Moreover, in the Fig. 4 third embodiment of the Egawa reference, a single injected resin is used, whereby first and second resins separate from each other are not disclosed. Also, the upper surface of semiconductor chip 11 in the Fig. 4 third embodiment of the Egawa reference is not sealed with a first resin.

With further regard to this rejection, a gap without resin does not exist between semiconductor chip 17 and internal substrate 10 (Fig. 1(b)) or 30 (Fig. 4) of the Egawa reference, as would be necessary to meet the further features of claim 53. The Buckley, III et al. reference also does not appear to disclose a gap without resin as featured in claim 53. Applicants therefore respectfully submit that the semiconductor

device of claim 53 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, and that this rejection, insofar as it may pertain to claims 53 and 60, is improper for at least these additional reasons.

Claims 35, 36 and 54-56 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Egawa and Buckley, III et al. references, in further view of the Lin et al. reference (U.S. Patent No. 5,239,198). As emphasized previously in the Amendment dated October 21, 2008, passive electronic component 50 as shown in Figs. 6 and 7 of the Lin et al. reference is not specifically described as a CSP (chip size packaged) type semiconductor device. Moreover, passive electronic component 50 is not specifically described or shown as having a main surface sealed with a second resin, wherein portions of each of a plurality of terminals are exposed from the second resin. Accordingly, Applicants respectfully submit that claims 35, 36 and 54-56 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, for at least these reasons.

Claims 57 and 60 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the Egawa and Buckley, III et al. references, in further view of the Inaba et al. reference (U.S. Patent No. 6,166,443). Applicants respectfully submit that the Inaba et al. reference as herein relied upon does not overcome the above noted deficiencies of the primarily relied upon prior art. The Inaba et al. reference does not disclose a gap without resin, and does not appear to specifically teach first and second separate resins, as would be necessary to meet the features of the claims.

Accordingly, Applicants respectfully submit that claims 57 and 60 would not have been obvious in view of the prior art as relied upon by the Examiner taken singularly or together, for at least these reasons.

### **Conclusion**

The Examiner is respectfully requested to reconsider and withdraw the corresponding rejections, and to pass the claims of the present application to issue, for at least the above reasons.

In the event that there are any outstanding matters remaining in the present application, please contact Andrew J. Telesz, Jr. (Reg. No. 33,581) at (571) 283-0720 in the Washington, D.C. area, to discuss these matters.

Pursuant to the provisions of 37 C.F.R. 1.17 and 1.136(a), the Applicants hereby petition for an extension of two (2) months to October 28, 2009, for the period in which to file a response to the outstanding Office Action. The required fee of \$490.00 should be charged to Deposit Account No. 50-0238.



If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment for any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0238.

Respectfully submitted,

VOLENTINE & WHITT, P.L.L.C.

A handwritten signature in black ink, appearing to read "Andrew J. Telesz, Jr.", with a stylized flourish at the end.

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